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1 [Data base directions: the next steps](#)

John L. Berg

November 1976 , Volume 8 , 8 Issue 4 , 2

Full text available: [pdf\(9.95 MB\)](#)

Additional Information: [full citation](#), [abstract](#)

What information about data base technology does a manager need to make prudent decisions about using this new technology? To provide this information the National Bureau of Standards and the Association for Computing Machinery established a workshop of approximately 80 experts in five major subject areas. The five subject areas were auditing, evolving technology, government regulations, standards, and user experience. Each area prepared a report contained in these proceedings. The proceedings p ...

Keywords: DBMS, auditing, cost/benefit analysis, data base, data base management, government-regulation, management objectives, privacy, security, standards, technology assessment, user experience

2 [Ultra-high-density data storage: introduction](#)

Lambertus Hesselink

November 2000 **Communications of the ACM**, Volume 43 Issue 11

Full text available: [pdf\(197.03 KB\)](#)

Additional Information: [full citation](#), [index terms](#)

[html\(17.12 KB\)](#)

3 [Information systems security design methods: implications for information systems development](#)

Richard Baskerville

December 1993 **ACM Computing Surveys (CSUR)**, Volume 25 Issue 4

Full text available: [pdf\(3.44 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The security of information systems is a serious issue because computer abuse is increasing. It is important, therefore, that systems analysts and designers develop expertise in methods for specifying information systems security. The characteristics found in three generations of general information system design methods provide a framework for comparing and understanding current security design methods. These methods include


approaches that use checklists of controls, divide functional req ...

Keywords: checklists, control, integrity, risk analysis, safety, structured systems analysis and design, system modeling

4 IS '97: model curriculum and guidelines for undergraduate degree programs in information systems

Gordon B. Davis, John T. Gorgone, J. Daniel Couger, David L. Feinstein, Herbert E. Longenecker

December 1996 **ACM SIGMIS Database , Guidelines for undergraduate degree programs on Model curriculum and guidelines for undergraduate degree programs in information systems**, Volume 28 Issue 1


Full text available:  [pdf\(7.24 MB\)](#) Additional Information: [full citation](#), [citations](#)



5 ARIES: a transaction recovery method supporting fine-granularity locking and partial rollbacks using write-ahead logging

C. Mohan, Don Haderle, Bruce Lindsay, Hamid Pirahesh, Peter Schwarz

March 1992 **ACM Transactions on Database Systems (TODS)**, Volume 17 Issue 1

Full text available:  [pdf\(5.23 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

DB2TM, IMS, and TandemTM systems. ARIES is applicable not only to database management systems but also to persistent object-oriented languages, recoverable file systems and transaction-based operating systems. ARIES has been implemented, to varying degrees, in IBM's OS/2TM Extended Edition Database Manager, DB2, Workstation Data Save Facility/VM, Starburst and QuickSilver, and in the University of Wisconsin's EXODUS and Gamma d ...

Keywords: buffer management, latching, locking, space management, write-ahead logging



6 Principles of transaction-oriented database recovery

Theo Haerder, Andreas Reuter

December 1983 **ACM Computing Surveys (CSUR)**, Volume 15 Issue 4

Full text available:  [pdf\(2.48 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)



7 Digital control of industrial processes

Cecil L. Smith

September 1970 **ACM Computing Surveys (CSUR)**, Volume 2 Issue 3

Full text available:  [pdf\(2.11 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



8 A personal view of the personal work station: some firsts in the Fifties

Douglas Ross

January 1986 **Proceedings of the ACM Conference on The history of personal workstations**

Full text available:  [pdf\(4.26 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)



9 Protection and the control of information sharing in multics

Jerome H. Saltzer

July 1974 **Communications of the ACM**, Volume 17 Issue 7

Full text available:  [pdf\(1.75 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


The design of mechanisms to control the sharing of information in the Multics system is described. Five design principles help provide insight into the tradeoffs among different possible designs. The key mechanisms described include access control lists, hierarchical control of access specifications, identification and authentication of users, and primary memory protection. The paper ends with a discussion of several known weaknesses in the current protection mechanism design.

Keywords: Multics, access control, authentication, computer utilities, descriptors, privacy, proprietary programs, protected subsystems, protection, security, time-sharing systems, virtual memory

10 Implementation of Argus

B. Liskov, D. Curtis, P. Johnson, R. Scheifer

November 1987 **ACM SIGOPS Operating Systems Review , Proceedings of the eleventh ACM Symposium on Operating systems principles**, Volume 21 Issue 5

Full text available:  [pdf\(1.34 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Argus is a programming language and system developed to support the construction and execution of distributed programs. This paper describes the implementation of Argus, with particular emphasis on the way we implement atomic actions, because this is where Argus differs most from other implemented systems. The paper also discusses the performance of Argus. The cost of actions is quite reasonable, indicating that action systems like Argus are practical.

11 The GemStone object database management system

Paul Butterworth, Allen Otis, Jacob Stein

October 1991 **Communications of the ACM**, Volume 34 Issue 10

Full text available:  [pdf\(6.60 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: GemStone, database management systems, object-oriented

12 Database Management Systems Development in the USSR

A. G. Dale

September 1979 **ACM Computing Surveys (CSUR)**, Volume 11 Issue 3

Full text available:  [pdf\(1.34 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

13 Experience Using Multiprocessor Systems—A Status Report

Anita K. Jones, Peter Schwarz

June 1980 **ACM Computing Surveys (CSUR)**, Volume 12 Issue 2


Full text available:  [pdf\(4.48 MB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

14 System R: relational approach to database management

M. M. Astrahan, M. W. Blasgen, D. D. Chamberlin, K. P. Eswaran, J. N. Gray, P. P. Griffiths, W. F. King, R. A. Lorie, P. R. McJones, J. W. Mehl, G. R. Putzolu, I. L. Traiger, B. W. Wade, V. Watson

June 1976 **ACM Transactions on Database Systems (TODS)**, Volume 1 Issue 2

Full text available:  [pdf\(3.18 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


System R is a database management system which provides a high level relational data interface. The system provides a high level of data independence by isolating the end user as much as possible from underlying storage structures. The system permits definition of a variety of relational views on common underlying data. Data control features are provided, including authorization, integrity assertions, triggered transactions, a logging and recovery subsystem, and facilities for maintaining ...

Keywords: authorization, data structures, database, index structures, locking, nonprocedural language, recovery, relational model

15 Session 6: Log write-ahead protocols and IMS/VS logging

R. J. Peterson, J. P. Strickland

March 1983 **Proceedings of the 2nd ACM SIGACT-SIGMOD symposium on Principles of database systems**

Full text available:  [pdf\(2.14 MB\)](#)


Additional Information: [full citation](#), [references](#), [citations](#)

Keywords: database, database management system, process synchronization point, recovery strategy, resource consistency, system failure, system log, transaction

16 A high performance multi-structured file system design

Keith Muller, Joseph Pasquale

September 1991 **ACM SIGOPS Operating Systems Review , Proceedings of the thirteenth ACM symposium on Operating systems principles**, Volume 25 Issue 5

Full text available:  [pdf\(1.40 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

File system I/O is increasingly becoming a performance bottleneck in large distributed computer systems. This is due to the increased file I/O demands of new applications, the inability of any single storage structure to respond to these demands, and the slow decline of, disk access times (latency and seek) relative to the rapid increase in CPU speeds, memory size, and network bandwidth. We present a *multi-structured file system* designed for high bandwidth I/O and fast response. Our design ...

17 Automatic data-recording in real-time control systems

H. E. Frachtman

January 1956 **Proceedings of the 1956 11th ACM national meeting**

Full text available:  [pdf\(247.77 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [index terms](#)


This paper discusses some of the aspects of data-recording in real-time control systems. A "real-time control system" senses the conditions existing in some process, converts this into appropriately coded data, assembles it in one place, draws conclusions from it, and transmits instructions to the process control elements. Such a system might be used for controlling a chemical or nuclear reaction, a large and complex system such as a ship, or an

environmental situation such as t ...

18 Special issue: AI in engineering

D. Sriram, R. Joobbani

January 1985 **ACM SIGART Bulletin**, Issue 91

Full text available:  [pdf\(8.79 MB\)](#) Additional Information: [full citation](#), [abstract](#)

The papers in this special issue were compiled from responses to the announcement in the July 1984 issue of the SIGART newsletter and notices posted over the ARPAnet. The interest being shown in this area is reflected in the sixty papers received from over six countries. About half the papers were received over the computer network.

19 Data Security

Dorothy E. Denning, Peter J. Denning


September 1979 **ACM Computing Surveys (CSUR)**, Volume 11 Issue 3

Full text available:  [pdf\(1.97 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

20 Compiler transformations for high-performance computing

David F. Bacon, Susan L. Graham, Oliver J. Sharp

December 1994 **ACM Computing Surveys (CSUR)**, Volume 26 Issue 4

Full text available:  [pdf\(6.32 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

In the last three decades a large number of compiler transformations for optimizing programs have been implemented. Most optimizations for uniprocessors reduce the number of instructions executed by the program using transformations based on the analysis of scalar quantities and data-flow techniques. In contrast, optimizations for high-performance superscalar, vector, and parallel processors maximize parallelism and memory locality with transformations that rely on tracking the properties o ...

Keywords: compilation, dependence analysis, locality, multiprocessors, optimization, parallelism, superscalar processors, vectorization

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